

REMARKS

This paper is submitted in reply to the Office Action dated March 22, 2005, within the three-month period for response. Reconsideration and allowance of all pending claims are respectfully requested.

In the subject Office Action, claims 1-12, 17-29 and 34-42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Patent Publication No. US-2004/0136470-A1 to DeBruyn et al. in view of U.S. Patent No. 6,788,151 to Shvarts et al., and provisionally rejected under 35 U.S.C. § 103(a) as being unpatentable over copending Application Serial No. 10/342,633 to DeBruyn et al. in view of Shvarts et al. In addition, claims 1-4, 6-12, 17-21, 23-29 and 34-42 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lohita et al. "Power Amplifier Linearization using Cubic Spline Interpolation" of record in view of Shvarts et al. Finally, claims 1-12, 17-29 and 34-42 were provisionally rejected on the basis of obviousness-type double patenting in view of the DeBruyn application and Shvarts.

Applicants respectfully traverse the Examiner's rejections to the extent that they are maintained. Applicants have canceled claims 3, 20 and 36, and amended claims 1, 4-7, 18, 21-24, 35 and 37. Applicants respectfully submit that no new matter is being added by the above amendments, as the amendments are fully supported in the specification, drawings and claims as originally filed.

Turning first to the rejection of claims 1-12, 17-29 and 34-42 based upon Patent Publication No. US-2004/0136470-A1 to DeBruyn et al. in view of Shvarts et al., and the provisional rejection of claims 1-12, 17-29 and 34-42 based upon copending Application Serial No. 10/342,633 to DeBruyn et al. in view of Shvarts et al., the Examiner will note that copending Application No. 10/342,633 to DeBruyn et al. was published as U.S. Publication No. US-2004/013470-A1, and thus is the same reference that forms the basis for both rejections. However, DeBruyn is not properly citeable against the instant Application pursuant to 35 U.S.C. § 103(c). Under 35 U.S.C. § 103(c), with respect to applications filed on or after November 29, 1999, a reference is disqualified as prior art if two conditions are

Page 14 of 19
Serial No. 10/625,761
Amendment and Response dated June 22, 2005
Reply to Office Action of March 22, 2005
Andrew Docket #690 & #705
WH&E ANCO/67US
K:\ANCO\67US\Amendment and Response re 3-22-05 OA.wpd

met: (1) the reference is qualified as prior art only under 35 U.S.C. §102(e), (f), or (g), and (2) the reference is commonly owned with the claimed invention (or subject to an obligation to be assigned to the same entity) at the time the invention was made.

With respect to the first requirement for applying 35 U.S.C. §103(c), DeBruyn was published after the date of invention for the instant application. As such, DeBruyn is only available as prior art under 35 U.S.C. §102(e), and 35 U.S.C. §103(c) applies to the reference.

With respect to the second requirement for applying 35 U.S.C. §103(c), Applicants assert that the claimed invention and DeBruyn were commonly owned by (or subject to an obligation to assign to) Andrew Corporation at the time the instant application was made. As evidence of this common ownership, an assignment for the instant application is recorded at Reel/Frame 014324/0887 of the U.S. Patent and Trademark Office Assignment Branch, while an assignment for DeBruyn is recorded at Reel/Frame 013679/0444.

Applicants therefore respectfully submit that DeBruyn, being *prima facie* prior art only under 35 U.S.C. 102(e), is not properly citeable against the instant application in an obviousness rejection due to the common ownership of the reference and the application. As such, the rejection and provisional rejection that are based in part upon DeBruyn should be withdrawn.

Next turning to the rejections based upon the combination of Lohita and Shvarts, and specifically to the rejection of claim 1, the claim recites a predistorter configured for use with an RF power amplifier. The predistorter includes an input loop configured to be coupled to the input of an RF power amplifier and a peak control circuit coupled to the input loop, where the peak control circuit is configured to select a power supply voltage for the RF power amplifier in response to the power in the input signal. The input loop includes a look-up table containing predistortion values and is configured to apply the predistortion values to an input signal, in response to a monotonically increasing function of the input signal power, for forming a predistorted input signal.

Page 15 of 19
Serial No. 10/625,761
Amendment and Response dated June 22, 2005
Reply to Office Action of March 22, 2005
Andrew Docket #690 & #705
WH&E ANCO67US
K:\ANCO67US\Amendment and Response re 3-22-05 OA.wpd

Claim 1 has also been amended herein to incorporate the subject matter of claim 3, namely, to additionally recite an output loop that is coupled to the output of the RF power amplifier, that is configured to measure an intermodulation distortion product of the RF power amplifier output resulting from the predistorted input signal, and that is operable to update the predistortion values in the look-up table. Further, the claim now recites that the output loop updates the predistortion values responsive to the measured intermodulation distortion product. Claim 3 has accordingly been canceled, and claims 4-7 have been amended to depend from claim 1. Claim 1 was also amended to correct a misspelling in the preamble thereof.

Neither Lohita nor Shvarts discloses or suggests, in combination with the other features of claim 1, the concept of an output loop that measures an intermodulation distortion product of an RF amplifier output and updates predistortion values in a look-up table responsive to the measured intermodulation distortion product. Lohita discloses a predistorter that incorporates an AM-AM and AM-PM estimator, which uses a high order polynomial to computer predistortion coefficients based upon a comparison of the I and Q components of the RF amplifier output to the predistorted I and Q inputs to a quadrature modulator (p. 677, Section II). However, Lohita does not disclose the actual measurement of an intermodulation distortion product and an update of predistortion values responsive to that measured intermodulation distortion product.

The Examiner argues, at the top of page 4 of the subject office action, that Lohita measures IM distortion product in an indirect way, basically due to the measurement of the sensing of RF amplifier output and application to the AM-AM and AM-PM estimator. The Examiner also asserts that Lohita recites in the last paragraph of page 677 that third-order and fifth-order products are measured.

Applicants respectfully submit, however, that the this disclosure falls short of disclosing or suggesting measuring IMD products and updating predistortion values responsive to such measured IMD products. The fact that IMD products are present in the

Page 16 of 19
Serial No. 10/625,761
Amendment and Response dated June 22, 2005
Reply to Office Action of March 22, 2005
Andrew Docket #690 & #705
WH&E ANCO/67US
K:\ANCO\67US\Amendment and Response re 3-22-05 OA.wpd

RF amplifier output of Lohita does not equate with "measuring" those products, much less updating predistortion values specifically in response to any particular measurement of such products. Moreover, it is important to note that the only measurement of IMD products that the Examiner can point to in Lohita is made using test tones for the purpose of simulating amplifier linearization performance. Such measurements are not made during the normal operation of the Lohita amplifier design, and moreover, such measurements are never used to update predistortion values, as required by claim 1. Therefore, Applicants respectfully submit that Lohita does not suggest the concept of measuring IMD products in an RF amplifier output and updating predistortion values specifically in response to such measurements.

Shvarts is cited merely for disclosing a variable power amplifier, and indeed this reference does not address the measurement of IMD products and the updating of predistortion values responsive to such measurements. Thus, Shvarts fails to add anything to the rejection with respect to this claimed concept. Furthermore, with respect to the concept of a variable power supply, Applicants submit that Shvarts fails to suggest the use of its variable power supply in connection with an adaptive predistorter having an input loop as specified in claim 1.

Thus, the addition of Shvarts does not remedy the failings of Lohita, and claim 1 is therefore non-obvious over the prior art of record. Applicants therefore respectfully submit that claim 1 is patentable over the prior art of record. Reconsideration and allowance of claim 1, as well as of claims 2, 4-12 and 17 which depend therefrom, are therefore respectfully requested. Furthermore, given that claim 1 is generic to all species, Applicants additionally request consideration and allowance of withdrawn claims 13-16.

Next, with respect to the rejection of independent claims 18 and 35, these claims have been amended in a similar manner to claim 1. Claim 18 now recites *inter alia* an output loop that is coupled to the output of an RF power amplifier, that is configured to measure an intermodulation distortion product of the RF power amplifier output resulting from the

Page 17 of 19
Serial No. 10/625,761
Amendment and Response dated June 22, 2005
Reply to Office Action of March 22, 2005
Andrew Docket #690 & #705
WH&E ANCO/67US
K:\ANCO\67US\Amendment and Response re 3-22-05 OA.wpd

predistorted input signal, and that is operable to update the predistortion values in a look-up table responsive to the measured intermodulation distortion product. Likewise, claim 35 now recites *inter alia* measuring an intermodulation distortion product of an RF power amplifier to select optimal predistortion values based upon the measured intermodulation distortion product. Consistent with these amendments, claims 20 and 36 have been canceled, claims 21-24 have been amended to depend from claim 18, and claim 37 has been amended to depend from claim 35.

As discussed above in connection with claim 1, neither Lohita nor Shvarts discloses or suggests, in combination with the other features of claim 18 and 35, the concept of measuring an intermodulation distortion product of an RF amplifier output and updating predistortion values responsive to the measured intermodulation distortion product. As such, Applicants submit that claims 18 and 35 are patentable over the prior art of record for the same reasons as presented above for claim 1. Reconsideration and allowance of claims 18 and 35, as well as of claims 19, 21-29, 34 and 37-42 which depend therefrom, are therefore respectfully requested. Furthermore, given that claim 18 is generic to all species, Applicants additionally request consideration and allowance of withdrawn claims 30-33.

As a final matter, with respect to the provisional obviousness-type double patenting rejection, it is Applicants understanding that when a provisional double patenting rejection is issued, it is proper to allow one application to proceed to issue and require a terminal disclaimer to be filed in the other application. As such, Applicants respectfully decline to submit a terminal disclaimer at this time. Moreover, even if the Applicants do ultimately submit a terminal disclaimer, it is noted that the submission of such a disclaimer is not an admission as to the merits of the Examiner's rejection, of which Applicants maintain traversal.

In summary, Applicants respectfully submit that all pending claims are novel and non-obvious over the prior art of record. Reconsideration and allowance of all pending claims are therefore respectfully requested. If the Examiner has any questions regarding the

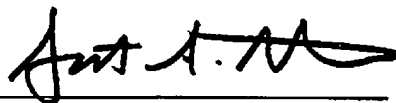
Page 18 of 19
Serial No. 10/625,761
Amendment and Response dated June 22, 2005
Reply to Office Action of March 22, 2005
Andrew Docket #690 & #705
WH&E ANCO/67US
K:\ANCO\67US\Amendment and Response re 3-22-05 OA.wpd

foregoing, or which might otherwise further this case onto allowance, the Examiner may contact the undersigned at (513) 241-2324. Moreover, if any other charges or credits are necessary to complete this communication, please apply them to Deposit Account 23-3000.

Respectfully submitted,

22 JUNE 2005

Date



Scott A. Stinebruner
Reg. No. 38,323
WOOD, HERRON & EVANS, L.L.P.
2700 Carew Tower
441 Vine Street
Cincinnati, Ohio 45202
Telephone: (513) 241-2324
Facsimile: (513) 241-6234

Page 19 of 19
Serial No. 10/625,761
Amendment and Response dated June 22, 2005
Reply to Office Action of March 22, 2005
Andrew Docket #690 & #705
WH&E ANCO/67US
K:\ANCO\67US\Amendment and Response re 3-22-05 QA.wpd